

**MULTI-SERVICE NETWORK SWITCH WITH INDEPENDENT  
PROTOCOL STACK ARCHITECTURE**

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**ABSTRACT OF THE DISCLOSURE**

A multi-service network switch capable of providing multiple network services from a single platform. The switch incorporates a distributed packet forwarding architecture where each of the various cards is capable of making independent forwarding decisions. The switch further allows for dynamic resource management for dynamically assigning modem and ISDN resources to an incoming call. The switch may also include fault management features to guard against single points of failure within the switch. The switch further allows the partitioning of the switch into multiple virtual routers where each virtual router has its own set of resources and a routing table. Each virtual router is further partitioned into virtual private networks for further controlling access to the network. The switch supports policy based routing where specific routing paths are selected based a domain name, a telephone number, and the like. The switch also provides tiered access of the Internet by defining quality of access levels to each incoming connection request. The switch may further support an IP routing protocol and architecture in which the layer two protocols are independent of the physical interface they run on. Furthermore, the switch includes a generic forwarding interface software for hiding the details of transmitting and receiving packets over different interface types.

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